

# Central Statistical Office

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Sectors providing  
the funds

Government

Higher education

Business enterprises

Abroad

Private non-profit

Total

of which  
Civil  
Defence

1 Research in the

2 For definitions of

3 The defence con-

account of internal

internal R&D

4 Part of this expen-

Annual Review

Expenditure on R&D

## Expenditure

## PROVISIONAL FIGURES FOR 1991

- \* The provisional estimate of the UK's Gross domestic expenditure on R&D in 1991 was £11.9 bn compared with £12.0 bn in 1990. This represents 2.1 percent of GDP as compared with 2.2 percent in 1990.
- \* R&D expenditure for civil purposes at £9.6 bn in 1991 was 2 percent higher than the figure for 1990 (£9.4 bn): R&D expenditure for defence purposes, at £2.4 bn showed a decline of 8 percent on the 1990 figure (£2.6 bn).
- \* The sectors of the economy carrying out this R&D in 1991 were:
  - \* **Business enterprises:** £7.8 bn compared to £8.1 bn in 1990;
  - \* **Government:** £1.6 bn little changed from 1990;
  - \* **Higher Education:** £1.9 bn compared to £1.8 bn in 1990;
  - \* **Private non-profit:** (mainly medical charities) £0.6 bn very similar to 1990.

## Funding

- \* In 1991 Government funded just over a third of all R&D performed in the United Kingdom, about a quarter of the civil R&D and just under two-thirds of the defence R&D.
- \* Total funding by Government for R&D (both internal and external) in 1991-92 - as shown by the survey of Government-funded R&D - is provisionally estimated at £5.3 bn (Table 4). Of this, £1.6 bn was spent within Government establishments, the remaining £3.7bn in support of R&D in other sectors in the UK and abroad.



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**Table 1 R&D performed in UK in each sector according to source of finance 1991 at current prices (£m)<sup>1</sup> - PROVISIONAL**

Sectors providing the funds <sup>2</sup>	Sectors carrying out the work <sup>3</sup>					Totals	Abroad
	Govt <sup>3</sup>	Higher education	Business enterprise	Private non-profit <sup>4</sup>			
Government	1360	1380	1140	240		4120	360
Higher education	..	90	..	..		90	
Business enterprise	190	160	5390	240		5980	
Abroad	30	100	1240	20		1390	
Private non-profit	60	210	..	90		360	
<b>Total</b>	<b>1640</b>	<b>1940</b>	<b>7770</b>	<b>590</b>		<b>11940</b>	
of which							
Civil	780	1900	6300	580		9560	
Defence	860	40	1470	10		2380	

1 Research in the social sciences and humanities is included.

2 For definitions of sectors see notes.

3 The defence component of Government performed R&D has been revised downwards to take account of recent MOD studies that have indicated that 15 percent of MOD's past recorded intramural R&D expenditure lies outside the internationally accepted definition of R&D.

4 Part of this expenditure may be reclassified to the Higher Education Sector in the forthcoming Annual Review of Government Funded R&D. This would have no effect on total Gross Domestic Expenditure on R&D.

## Sectors Carrying out the Work

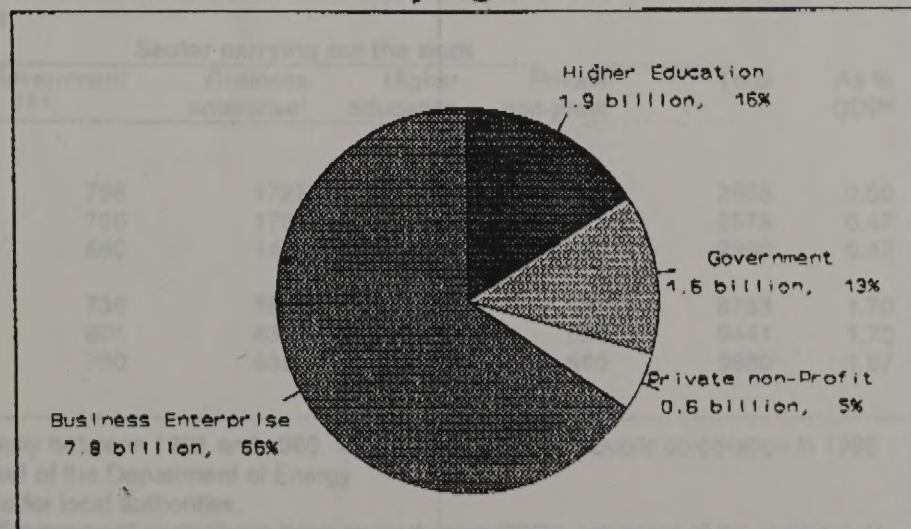


Figure 1



**Table 2 Expenditure on research and development in the UK by sector of performance  
1981 to 1991 (£m)**

**(a) At current prices**

	Sector carrying out the work				Total	As % GDP <sup>4</sup>
	Government <sup>1 2 3</sup>	Business enterprise <sup>1</sup>	Higher education	Private non-profit		
1981	1243	3792	816	170	6021	2.37
1983	1357	4163	950	194	6664	2.20
1985	1440	5122	1174	272	8008	2.25
1986	1207	5951	1281	336	8775	2.29
1987	1264	6335	1403	350	9352	2.21
1988	1360	6922	1515	410	10207	2.17
1989	1534	7650	1622	482	11288	2.20
1990	1567	8099	1790	562	12019	2.19
1991 <sup>p</sup>	1640	7770	1940	590	11940	2.09

**(b) At 1985 prices<sup>5</sup>**

	Sector carrying out the work				Total
	Government <sup>1 2 3</sup>	Business enterprise <sup>1</sup>	Higher education	Private non-profit	
1981	1544	4710	1013	211	7478
1983	1504	4613	1053	215	7384
1985	1440	5122	1174	272	8008
1986	1169	5765	1241	325	8501
1987	1161	5818	1288	321	8588
1988	1164	5925	1297	351	8737
1989	1232	6145	1303	387	9067
1990	1165	6023	1331	418	8938
1991 <sup>p</sup>	1143	5417	1353	411	8325

**(c) Civil/defence split**

	Sector carrying out the work				Total	As % GDP <sup>4</sup>
	Government <sup>1 2 3</sup>	Business enterprise <sup>1</sup>	Higher education	Private non-profit		
Defence						
1989	798	1727	25	5	2555	0.50
1990	766	1761	40	11	2578	0.47
1991 <sup>p</sup>	860	1470	40	10	2380	0.42
Civil						
1989	736	5923	1597	477	8733	1.70
1990	801	6339	1750	551	9441	1.72
1991 <sup>p</sup>	780	6300	1900	580	9560	1.67

1 There is a discontinuity between 1985 and 1986. The UKAEA became a public corporation in 1986 and ceased to be part of the Department of Energy.

2 Includes an estimate for local authorities.

3 The figures for the Government sector have been revised using CSO's estimates of the revisions to MOD figures (see Note 3, Table 1).

4 GDP = gross domestic product at market prices as in the UN definition.

5 Using the adjusted GDP deflator (See notes to editors).

p = provisional



Table 3 Expenditure on research and development in the UK by sector of funding 1981 to 1991

Sector funding the R&D	As a percentage of total					At current prices (£m)				
	1981	1983	1985	1986	1987	1988	1989	1990	1991	1991
Government	49	50	43	42	39	36	36	26	69	36
Business enterprise	41	42	46	47	49	52	51	60	19	49
Higher education									1	1
Abroad									11	11
Private non-Profit									10	10
Total	100	100	100	100	100	100	100	100	100	100

See notes 1 to 2 at Table 2.



**Table 4 Gross central government expenditure on R&D 1981-82 to 1991-92**

## NOTES TO EDITORS

	1981-82	1985-86	1989-90	1990-91	1991-92 <sup>a</sup>
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**At current prices (£m):**

Internal <sup>1</sup>	Final figures will be published in the Annual Survey of Research and Development (ASERD) for 1991-92.	1243	1440	1524	1556
External <sup>2</sup>	Technology in the Annual Survey of Research and Development in Summer 1992.	2360	3150	3317	3518
Total gross	Revisions to figures	3603	4590	4841	5074

The tables include revisions to the data as the result of an exercise which MOD has conducted into the expenditure on Research and Development

**At 1985 prices (£m):<sup>3</sup>**

Internal <sup>1</sup>	including the, in the past, about 15 per cent of R&D expenditure by the department (internal expenditure). The results	1544	1440	1224	1157	1136
External <sup>2</sup>	intenditure by entities the int	2931	3150	2664	2616	2594
Total gross	Revisions to figures	4475	4590	3888	3773	3730

Current price figures have been converted into real terms using the Adjusted GDP

**As % total gross:**

Internal <sup>1</sup>	1987, produced by the CSO. For many GDP as actually measured and	34	31	31	31	30
External <sup>2</sup>	produced by the CSO in National Accounts data, there is a discontinuity in the	66	69	69	69	70
Total gross	Revisions to figures	100	100	100	100	100

## Sources

1 Internal data have been revised downwards to take account of recent MOD studies. (See note 3, Table 1)

2 Including work performed overseas.

3 Using the adjusted GDP deflator (See notes to editors).

p = provisional

Every four years CSO conducts a benchmark survey of business R&D. The last such survey was in respect of 1989 and for the first time requested separate civil and defence returns for expenditure, funding and employment. There is an annual sample survey in between benchmark surveys. Details of the 1991 survey results were published in CSO Bulletin 7/93 on 25 January 1993.

## Classifications of Sectors

The OECD terminology is used. "Government" corresponds to the "General government" sector of the UK National Accounts and includes local as well as central government. "Business enterprise" (previously called "Industry")



## NOTES TO EDITORS

The Central Statistical Office publishes today the provisional figures for Gross domestic expenditure on Research and Development (GERD) for 1991. Final figures will be published by the Office of Science and Technology in the Annual Review of Government Funded Research and Development in Summer 1993.

### **Revisions to figures**

The tables include revisions to the data as the result of an exercise which MOD has conducted into the expenditure on Research and Development performed within the department (intramural expenditure). The results indicated that, in the past, about 15 percent of MOD's recorded intramural expenditure lay outside the internationally accepted definitions of R&D. The figures for expenditure on R&D performed within the Government sector have been revised to take account of this.

### **Deflators**

Current price figures have been converted into real terms using the **adjusted GDP deflator**, produced by the CSO. For money GDP as actually measured and published by the CSO in National Accounts data there is a discontinuity in the series associated with the change from domestic rates, which were included within GDP, to the community charge, which is not. In order to allow consistent comparisons of expenditure as a proportion of GDP, the CSO has produced an adjusted GDP deflator for the years up to 1989-90 which is on a consistent basis with the figures for 1990-91 onwards.

### **Sources**

There are two annual CSO surveys of R&D statistics. One is addressed to all government departments, the other to enterprise groups performing R&D in industry. Full details of the survey of government R&D will be published this summer by the OST in the Annual Review of Government Funded Research and Development. Every four years CSO conducts a benchmark survey of business R&D. The last such survey was in respect of 1989 and for the first time requested separate civil and defence returns for expenditure, funding and employment. There is an annual sample survey in between benchmark surveys. Details of the 1991 survey results were published in CSO bulletin 7/93 on 25 January 1993.

### **Classifications of Sectors**

The OECD terminology is used. "Government" corresponds to the "General government" sector of the UK National Accounts and includes local as well as central government. "Business enterprise" (previously called "Industry")



corresponds to the "Corporate" sector and includes public corporations and research associations as well as commercial and industrial companies. "Private non-profit" (previously called "other") corresponds to the "Personal" sector of the National Accounts, except that higher education institutes are excluded and put into a separate OECD sector ("Higher Education"). "Abroad" was previously called "Overseas".

### **Gross domestic expenditure on R&D (GERD)**

Gross domestic expenditure on R&D (GERD) is a measure commonly used for international comparisons. It covers all R&D performed in the country concerned, including that funded from abroad, but excludes R&D performed abroad. The four components of GERD relate to R&D performed in the four sectors of the economy:

- a. Government R&D is based on the returns of intramural R&D in the CSO Government survey but includes an estimate for R&D performed by local authorities.
- b. Business enterprise R&D is derived from the results of the CSO survey of business enterprise R&D.
- c. Higher Education R&D is estimated by the Higher Education Funding Council, using assumptions about the proportion of general funding directed to R&D.
- d. Private non-profit R&D is partly derived from the survey of government-funded R&D and partly estimated by the CSO.

In addition to being analysed by sector of performance, GERD may be analysed by sector of funding. The R&D performed by any one sector of the economy can be funded by any of the other sectors or by the performing sector itself.

The figures for R&D performed by Government and Business enterprises may be considered more robust than the other GERD components, since they are based on survey results.

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